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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/741,829	12/19/2003	Dennis Duprey	EMC-03-098CIP1	6176

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EXAMINER

FARROKH, HASHEM

ART UNIT	PAPER NUMBER
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2187

DATE MAILED: 10/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/741,829

Applicant(s)

DUPREY ET AL.

Examiner

Hashem Farrokh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/11/06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,9,11,12,16 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,9,11,12,16 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

The instant application having application No. 10/741,829 has a total of 9 claims pending in the application; claims 1, 9, and 17 have been amended; claims 2, 6-8, 10, and 13-15 have been canceled; no new claims have been added.

1. ACKNOWLEDGEMENT OF REFERENCES CITED BY APPLICANT

Information Disclosure Statement

As required by **M.P.E.P. 2001.06(b)** and **37 C.F.R. 1.98(d)**, since the instant application has been identified as a continuation application of an earlier filed application and is relied upon for an earlier filing date under **35 U.S.C. 120**, the examiner has reviewed the prior art cited in the earlier related application as required by **M.P.E.P. 707.05** and **904** and as stated in **M.P.E.P. 2001.06(b)**, no separate citation of the same prior art need be made by the applicants in the instant application.

INFORMATION CONCERNING CLAIMS:

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1, 3-5, 9, 11-12, and 16-17 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,898,681 B2 to Young.

3. *In regard to claim 1, Young teaches:*

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"In a data storage environment having a server (**column 4, lines 34-35**), a first and second data storage volume (**column 4, lines 34-35; elements 6 and 8 in Fig. 1**), and production data being stored on the first data storage volume (**column 4, lines 11-15; element 6 in Fig. 1**), and a copy of the production data denominated as the data copy being stored on the second data storage volume (**column 4, lines 11-15; element 8 in Fig. 1**), a method, operable on a computer system, of handling updates to the data copy when the environment is configured for processing incremental updates to the data copy the method comprising the steps of:" (**e.g., see column 7, lines 47-61; column 8, lines 56-67 and column 9, lines 1-15; Figs. 6a-6b and 71-7f**). *For example the master store represents the first storage volume and shadow store represents the second storage volume recited in the claim. For example Fig. 7a-7b the process of initially copying the point in time of the all three blocks from master store to shadow store by setting all bits corresponding to these blocks in the shadow bitmap to zero and the copy bitmap to one and after copying is complete setting the corresponding bit in the copy bit map to zero (e.g., non-incremental update). However, if a new data is being written to a block in the master store (e.g., data is updated), the corresponding bit in the shadow bitmap is set to one to indicate that data in master store is different from the shadow store. A new point time of this block will be stored in the shadow store (e.g., incremental update).*

"protecting the data copy from being written over;" (**e.g., see column 11, lines 13-35**).

For example Young teaches the user select whether to overwrite or preserve a point-on-

time copy. If the user selects not to overwrite a point-in-time copy (e.g., a data copy) a fresh point-in-time copy will be created that contains the updated data.

“responsive to the start of a full update to the copy of the production data (column 7, lines 62-67), not marking the state of the production data as being ready for being copied;” (e.g., see column 7, lines 62-67; element 10b in Figs. 7a-7f).

“updating a session associated with the data copy as being in an inconsistent state with the data copy;” (e.g., see column 10, lines 45-53). For example a logic “1” in the shadow bitmap indicates the corresponding data block in the master store is updated and is inconsistent state with the point time copy in the shadow store.

“completing the update to the copy of production data.” (e.g., see column 8, lines 56-67; column 9, lines 1-15). A one in the shadow bit map indicates that the corresponding data block in the master store is new or updated and a point in time of this data block will be stored in the shadow store to complete the update.

“unprotecting the data copy after completion of update.” (e.g., see column 9, lines 51-57; column 10, lines 24-26; column 11, lines 13-22; Figs 6c and 10).

5. *In regard to claims 3, and 11 Young teaches:*

“wherein the session is associated with a tracking data structure.” (e.g., see column 4, lines 65-67 and column 5, lines 1-3; Figs. 7a-7f). Young teaches the bitmap is used for tracking the data blocks in the master and the shadow stores.

6. *In regard to claims 4 and 12 Young teaches:*

“wherein a transfer data structure is associated with data.” (e.g., see column 8, lines 56-67 and column 9, lines 1-15; Figs. 7a-7f). The bitmaps tracks the state of data

structure and the data is copied or transferred from the master store to shadow store if the bitmap indicates an inconsistency state.

7. *In regard to claims 5 and 16 Young teaches:*

“wherein the environment includes a first and second data storage system and the first data storage volume is stored on the first data storage system and the second data storage volume is stored on the second storage system.” (e.g., see **column 4, lines 1-15; elements 6 and 8 in Fig. 1**).

8. *In regard to claim 9 Young teaches:*

“A system for handling updates to the data copy when the environment is configured for processing incremental updates to the data copy, the system comprising:” (e.g., see **column 7, lines 47-61; column 8, lines 56-67 and column 9, lines 1-15; Figs. 6a-6b and 71-7f**).

“a first data storage volume having production data stored thereon;” (**column 4, lines 11-15; element 6 in Fig. 1**).

“a second data storage volume in communication with the first data storage system (**element 4 in Fig. 1**), and having a copy of the production data denominated as the data copy on the first data volume;” (**column 4, lines 11-15; element 8 in Fig. 1**).

“a server in communication with the first data storage volume;” (**column 4, lines 34-35**).

“computer-executable program logic, provided from a computer readable medium, configured in relationship to the first and second data storage volume and the server for causing the following computer-executed steps to occur:” (**column 4, lines 40-45; Fig. 2**).

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“protecting the data copy from being written over;” (e.g., see column 11, lines 13-35).

“responsive to the start of a full update to the copy of the data (column 7, lines 62-67), not marking the state of the production data as being ready for being copied;” (e.g., see column 7, lines 62-67; element 10b in Figs. 7a-7f).

“updating a session associated with the data copy as being in an inconsistent state with the data copy;” (e.g., see column 10, lines 45-53).

“completing the update to the copy of production data.” (e.g., see column 8, lines 56-67; column 9, lines 1-15).

“unprotecting the data copy after completion of update.” (e.g., see column 9, lines 51-57; column 10, lines 24-26; column 11, lines 13-22; Figs 6c and 10).

9. *In regard to claim 17, Young teaches:*

“A program product for use in a data storage environment and being for handling updates to a copy of production data,” (e.g., see column 1, lines 33-36). *For example making backup of the point in time at a regular interval represents periodic updates recited in the claim.*

“wherein the data storage environment (Fig. 1) includes:”

“a first data storage volume having production data stored thereon;” (column 4, lines 11-15; element 6 in Fig. 1).

“a second data storage volume in communication with the first data storage volume (element 4 in Fig. 1), and having a copy of the production data denominated as the data copy on the first data storage volume;” (column 4, lines 11-15; element 8 in Fig. 1).

"a server in communication with the first data storage volume;" (**column 4, lines 34-35**).

"the program product includes computer-executable logic provided by a computer readable medium and which is configured for causing a computer to execute steps of:" (**column 4, lines 40-45; Fig. 2**).

"protecting the data copy from being written over;" (**e.g., see column 11, lines 13-35**).

"responsive to the start of a periodic update to the copy of the data (**e.g., see column 1, lines 33-36**), marking the state of the production data as being ready for being incrementally copied to update the data copy to account for any incremental changes to the production data;" (**e.g., see column 7, lines 47-61; column 8, lines 56-67 and column 9, lines 1-15; Figs. 6a-6b and 71-7f**).

"(b) preparing to update the data copy by protecting the production data from being written over until an incremental copy operation is performed;" (**e.g., see column 6, lines 1-13**). *For example before data to be overwritten a copy of the data will be copied and stored in the shadow store.*

"updating the data copy in accordance with the incremental copy operation being performed;" (**e.g., see column 8, lines 56-67 and column 9, lines 1-15; Figs. 6a-6b and 71-7f**).

"marking the state of the production data as having been transferred (**e.g., see column 8, lines 56-61**), and unprotecting the production data thereby allowing it to be written over." (**e.g., see column 8, lines 54-61; Fig. 6b**). *Once the point time copy of data to be overwritten made and stored in shadow store and the corresponding bitmap set the corresponding data will be overwritten.*

Response to Applicant's Remarks

In view of Applicant's amendment of claim 9 and the persuasive argument in regard to claim 17 the rejections under 35 USC § 101 are withdrawn in this Office Action. As was described in previous Office Action in regard to prior art rejection Examiner believes young teaches all the limitations as recited in the claims. Young teaches the POT copy is protected until the overwrite of the master store is completed. For example a "one" in the bitmap indicates the data in mater store and shadow are different. The decision as to create a new POT copy or to update a POT copy (e.g., including the current one) depends on the user's request. For example column 11, lines 8-30 of Young teaches:

"Thus, when at S40 in FIG. 10, the point in time copy controller 4 receives (via the user interface 21 or the network interface 83) a request from a user to make a point in time copy then, at S41 in FIG. 10, the point in time copy controller a determines whether the user has selected to overwrite the earliest point in time copy. If the answer a S41 is yes, then, at S42 in FIG. 10, the point in time copy controller 4 updates the existing point in time copy defined by the point in time copy data stored in the shadow store 8-1 and the bitmap store 10-1 by overwriting any data blocks of the shadow store with the corresponding data blocks of the master store 6 where the corresponding bit of the shadow bitmap is 1 indicating that the data has changed since the last point in time copy was produced. In this case, the earlier point in time copy is lost.

(55) If, however, the user has selected not to overwrite the earliest point in time copy then, at S43 in FIG. 10, the point in time copy controller 4 creates a fresh point in time copy using the shadow store 8-2 and the bitmap store 10-2 in the manner described above with reference to FIGS. 3 to 5e where the dependent mode is selected and in the manner described above with reference to FIGS. 6a to 8b where the independent mode is selected."

In summary, the Examiner believes Young teaches all limitations recited in the claims. Therefore, the Examiner maintains his position and makes this Office Action Final.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

*Any inquiry concerning this communication should be directed to Hashem Farrokh whose telephone number is (571) 272-4193. The examiner can normally be reached Monday-Friday from **8:00 AM to 5:00 PM**.*

If attempt to reach the above noted Examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Donald A Sparks, can be reached on (571) 272-4201.

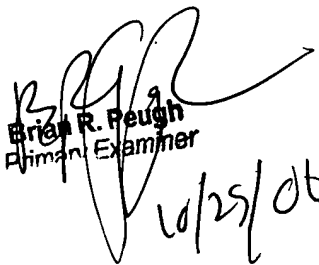
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either private PAIR or Public PAIR. Status information

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for unpublished application is available through Private PAIR only. For more information about PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBS) at 866-217-9197 (toll-free).

HF

2006-10-23


Brian R. Peugh
Primary Examiner
10/25/06